CLAIMS

1. A method of measuring an analyte concentration in body fluid in an animal body having skin and subcutaneous soft tissue that includes body fluid, said method comprising:

(a) providing an analyte measuring device, including:

(b) an analyte sensing element, having a sharpened distal end to facilitate introduction into said animal body and further having an indicating electrode covered by an absorbent or spreading layer;

(c) an electric power, data processing and display device adapted to mate to said analyte sensing element and activate said analyte sensing element by applying electric power to it and adapted to receive said raw analyte measurement and to compute and display a refined analyte measurement, related to said raw analyte measurement;

(d) introducing said analyte sensing element into said animal body subcutaneous soft tissue, thereby placing said absorbent layer into contact with said animal body subcutaneous soft tissue and said body fluid;

(e) permitting said absorbent layer to become saturated with body fluids;

(f) removing said indicating electrode from said body soft tissue;

(g) activating said analyte sensing element by applying electric power to it, thereby causing said analyte sensing element to form a raw analyte measurement; and

(h) receiving said raw analyte measurement in said electric power, data processing and display device and computing and displaying a refined analyte measurement, related to said raw analyte measurement.

2. An analyte sensing element adapted to be introduced into an animal body and removed from said animal body in a time period of less than about 2 seconds, said sensing element comprising:

(a) a rigid longitudinal body having a sharpened distal end to facilitate introduction into said animal body; and

(b) an indicating electrode covered by an absorbent or spreading layer located on said rigid longitudinal body.

3. The analyte sensing element of claim 2 wherein an enzyme layer is interposed between said indicating electrode and said absorbent layer.

4. The analyte sensing element of claim 2 wherein a redox mediator layer is interposed between said enzyme layer and said indicating electrode.

5. The analyte sensing element of claim 2 wherein a permselective layer is interposed between said enzyme layer and said absorbent layer.

6. The analyte sensing element of claim 2 wherein an interferent excluding layer is interposed between said enzyme layer and said absorbent layer.

7. A set of analyte sensing elements, each comprising:

(a) a rigid longitudinal body having a sharpened distal end to facilitate introduction into said animal body; and

(b) an indicating electrode covered by an absorbent layer located on said rigid longitudinal body, all of said absorbent layers being adapted to absorb an equal amount of body fluids, to a tolerance of 10%.

8. The set of analyte sensing elements of claim 7 wherein all of said absorbent layers are adapted to absorb an equal amount of body fluids, to a tolerance of 5%.

9. The set of analyte sensing elements of claim 7 wherein all of said absorbent layers are adapted to absorb an equal amount of body fluids, to a tolerance of 2%.

10. An analyte measuring device, including:

(a) an analyte sensing element, having a sharpened distal end to facilitate introduction into said animal body and further having an indicating electrode covered by an absorbent layer; and

(b) an electric power, data processing and display device adapted to mate to said analyte sensing element and activate said analyte sensing element by applying electric power to it and adapted to receive said raw analyte measurement and to compute and display a refined analyte measurement, related to said raw analyte measurement.

11. An analyte sensing element, comprising:

(a) an electrochemically active surface; and

(b) a layer that includes a conductive, redox mediating polymer , sealingly applied to said electrochemically active surface.

12. The analyte sensing element of claim 11 wherein said layer that includes a conductive, redox mediating polymer substantially consists of said conductive, redox mediating polymer and is coated with a layer that includes an enzyme and an enzyme cofactor.

13. The analyte sensing element of claim 11 wherein said layer that includes a conductive, redox mediating polymer also includes an enzyme and an enzyme cofactor mixed with said conductive redox mediating polymer.

14. The analyte sensing element of claim 11, wherein said conductive, redox mediating polymer is polyvinyl ferrocene.

15. The analyte sensing element of claim 11 wherein said enzyme cofactor is taken from a group consisting primarily of nicotinamide adenine dinucleotide, flavin adenine dinucleotide and quinone-based enzyme cofactors.

16. The analyte sensing element of claim 11 wherein said enzyme is taken from a group consisting primarily of glucose dehydrogenase and glucose oxidase.

17. A method of making an analyte sensing element, comprising:

(a) providing a substrate having an electrochemically active surface; and

(b) forming a sealing layer that includes a conductive, redox mediating polymer onto said electrochemically active surface.

18. The method of claim 17 wherein said sealing layer that includes conductive redox mediating polymer is made primarily of conductive redox mediating polymer and further including a step of applying a layer of enzyme and enzyme cofactor over said layer made primarily of redox mediating polymer.

19. The method of claim 17 wherein said sealing layer that includes conductive redox mediating polymer also includes enzyme and enzyme cofactor.

20. The method of claim 17 wherein said sealing layer of conductive redox mediating polymer

21. The method of claim 17 wherein said sealing layer of conductive redox mediating polymer is formed by electro polymerization.

22. The method of claim 17, wherein said layer of conductive, redox mediating polymer is polyvinyl ferrocene.

23. The method of claim 17, wherein said enzyme cofactor is taken from a group consisting primarily of nicotinamide adenine dinucleotide, flavin adenine dinucleotide and quinone-based enzyme cofactors.

24. The method of claim 17, wherein said enzyme is taken from a group consisting primarily of glucose dehydrogenase and glucose oxidase.

25. An analyte sensing element, comprising:

(a) an electrochemically active surface; and

(b) a layer comprised of a conductive, redox mediating polymer , sealingly applied to said electrochemically active surface;

(c) a layer that includes an enzyme and an enzyme cofactor mixed with absorbent material.